REMARKS ON PRE-VESICAL INFLAMMATION.

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SINCE Retzius, a Swedish anatomist published a paper in 1858 describing in detail the anatomy of the lower abdominal wall and pre-vesical space, many cases of inflammation in this region have been reported ; and many articles have been written, chiefly by French authors, with a view to explaining the pathology of these inflammations and tabulating our knowledge of the subject including the cases reported.

The writer has recently had the privilege of examining a case of inflammation in this region occurring in the service of Drs. Bradford and Post at the Boston City Hospital, and has been interested to look up the present-day knowledge on the subject. A resumé of this knowledge, apparently, does not exist in English, and it is hoped that the present one may prove of use to some of us.

The pre-vesical space, often called the cavity of Retzius, is a shallow space entirely external to the peritoneum, and serves in part to give the bladder room in which to expand when filled with urine. It is bounded anteriorly by the pubes and the anterior layer of the transversalis fascia of Cooper and behind by the bladder and by the posterior layer of this same fascia. The part of the space which extends upward beyond the pubes is limited above by the line of union of the two layers of fascia which are given off at the lower border of the sheath of the recti muscles posteriorly, and has for its side limits the union of these layers with the aponeurosis of the transversalis and the oblique muscles. Below the space is limited by the prostatic sheath and the superior aponeurosis of the true pelvis, so that pus in this space can get back to the rectum and to the iliac fossæ on either side of it.

Now let me see if I can make this a little clearer. It will be remembered that the sheath which covers the recti muscles of the abdomen on their posterior surface, does not extend all the way down to the pubes but ceases at a point between the umbilicus and pubes, and ends in a crescentic border which the French writers call the "semicircular fold of Douglas." This leaves the lower part of the posterior surface of the recti muscles without a sheath. From this lower crescentic edge of the sheath two thin layers of fascia are continued. The anterior one, which is very thin indeed, covers the lower posterior surface of the recti muscles, left uncovered by their own sheath, and attaches itself to the symphysis. The posterior of the two layers extend down behind the bladder to join the pelvic fascia. These two layers of fascia are merged at the sides into the edge of the aponeurosis of the transversalis and oblique muscles. It is evident that there are two distinct spaces in this region; First, A submuscular space just behind the lower part of the recti muscles and shut off from the pre-vesical space proper by the thin anterior layer of fascia, and second, the pre-vesical space itself, shut in above between the two layers of fascia, and below between the anterior bladder wall and the symphysis pubis.[1]

Enough has been written about the anatomy of the so-called space of Retzius to create a very general interest in the pathology of the region; and cases of many different kinds have been reported as instances of pre-vesical abscess. Various different schemes for arranging these cases have been suggested, so that from the writings on the subject it is difficult to get an idea of what is meant by a case of pre-vesical abscess.

As may be supposed, suppuration in this region occurs as a result of traumatism (operative or otherwise), as a result of disease in neighboring organs such as the bladder, prostate, uterus, etc., and even a gonorrhœa has been the direct cause of pre-vesical suppuration in one or more instances, as a result of metastasis in pyæmia or typhoid fever. In other words we may have an inflammatory process in this region as in most other parts of the body from very many different causes.

A study of reports shows that when all such cases have been eliminated there still remain a number which have apparently no such reason for their existence. In other words, as far as our present knowledge goes, there are idiopathic pre-vesical abscesses. Englisch, of Vienna, has studied and tabulated the

[1] I purposely refrain from further anatomical detail as to the boundaries, etc., of these spaces, as the points mentioned are all that seem necessary for clearness and I believe they are all proven by many careful dissections made at different times by several anatomists (notably Retzius and Hyatt). The descriptions of them date back to the early years of this century.

cases of this sort which he was able to find and published his tables in two articles (1889 and 1891). He finds in literature twenty-three cases of so-called idiopathic pre-vesical inflammation and adds ten more from his own experience.

In none of these could any possible cause for the inflammation be assigned. He thinks that all other cases may be conveniently classed under three headings: 1, those caused by traumatism; 2, those caused by metastasis, and 3, those caused by direct extension from neighboring organs or tissues. Let us leave these cases for brief consideration later and look first at the idiopathic form of inflammation, as these cases are by far the most interesting ones for us inasmuch as we are still in ignorance of their cause.

Although there have been a few chronic cases of pre-vesical inflammation in which there were no apparent symptoms until the appearance of the tumor, still in most cases the illness begins with symptoms of severe gastric and bowel disturbance. There is usually constipation accompanied by colicky pain and vomiting, these symptoms being sometimes so severe as to cause a considerable degree of collapse. The constipation shortly gives place to a persistent diarrhœa, which is accompanied by loss of appetite and a general feeling of discomfort and uneasiness. These symptoms, referable to the stomach and bowels, are of sufficient severity to send the patient to bed. Within two weeks, and generally within a few days, from the beginning of the illness, the pain, which may have been the only symptom up to this time, which in any way localized the disturbance, and which may have been present either as a dull, heavy feeling in the lower abdomen or as a sharper pain in the pre-vesical region, becomes more severe and more sharply localized, the fever is more marked, and a tumor manifests itself above the symphysis, generally symmetrical in shape and looking very much like a full bladder. The catheter demonstrates an empty bladder and the diagnosis is made if one has followed the previous history of the case. The tumor may be rather asymmetrical in shape owing, no doubt, to the more rapid spread of the inflammatory process on one side than on the other, but it is usually symmetrical and its upper border is flat and sharply defined, so that the tumor is commonly described as being triangular in shape with the base of the triangle upwards and the point disappearing behind the symphysis pubis. Examination by rectum or in women by vagina, will not, as a rule, demonstrate the presence of any swelling, unless the trouble has been present for some time. Occasionally, the downward extension of the inflammation can be felt in this way. Disturbance of micturition is almost the rule in these cases, as

one would expect, and yet a few cases are recorded where the micturition was so nearly normal as to be scarcely an inconvenience, while in one case, there was no such disturbance at all. Complete retention is not common, the disturbance being generally a constant vesical tenesmus with frequent and somewhat difficult micturition. The urine itself is generally normal although in cases of long standing a cystitis more or less severe is apt to develop with its attendant changes in the urine.

The inflammatory process terminates either in resolution, or more commonly in suppuration. If the trouble subsides without suppuration, the further history of the case is simply a gradual diminution in the severity of all symptoms, so that at the end of five or six weeks no trouble remains, and physical examination reveals nothing except perhaps a little induration in the anterior abdominal wall or, as felt per rectum, at the base of the bladder in the neighborhood of the prostate and seminal vesicles. These areas of induration may remain unresolved for months, and if present at the base of the bladder may give rise to further disturbance of micturition.

If the process ends in suppuration, the beginning of pus formation is indicated by a sudden increase in the pain and fever with perhaps a well marked chill. The trouble with micturition may also increase in severity ; and in some cases an œdema of the skin just above the pubes appears and may be the first indication of abscess formation. The abscess may break through its walls and carry the inflammation into any of the surrounding tissues or organs.

Most commonly it makes its way through the anterior abdominal wall and appears close under the skin, as a rule in or near the median line, the pus pointing in two places in some cases.

The pus may work down to the front of the thigh through the inguinal opening ; it may break into the bladder, urethra, rectum or vagina ; or it may perforate the peritoneum and get into the peritoneal cavity. Several cases of fœtal fistula are reported, the bowel wall having tied itself down to the wall of the cavity by adhesions and then the perforation taking place. This complication may render the diagnosis very difficult as in the case which the writer examined at the Boston City Hospital in which such a fistula existed. This case, although one of pre-vesical suppuration is not reported in detail because its history shows conclusively that the pre-vesical abscess was merely an extension downward of an inflammation which began higher up in the abdominal wall, probably as an extravasation of blood in the right rectus muscle which was the nucleus of an abscess which broke through into the pre-vesical space.

The prognosis in these cases is not necessarily a bad one, as

is commonly stated. Out of thirty-three cases collected by Englisch, including ten of his own, there were but four (4) deaths and in these four cases the abscess broke through into the peritoneal cavity and the patient died of a purulent peritonitis in each instance. In but one of these four cases was any attempt made to liberate the pent up pus by operation. This one was undoubtedly of tubercular origin. Of these thirty-three cases of idiopathic pre-vesical inflammation (and I have been unable to find any others recorded), fourteen subsided without operation or any but symptomatic treatment; seven were incised and slowly recovered ; and the other twelve opened themselves spontaneously, four through the anterior abdominal wall, two into the rectum, two into the bladder or urethra and four into the peritoneal cavity (one of these, in spite of the fact that a vent for the pus had already been provided by an operation).

The cause of these inflammations is at present unknown to us and we are not in a position to make any assertions with regard to it. Many surgeons believe that the process is a tubercular one, but there seems to be no proof of this at present beyond the fact that a goodly percentage, perhaps about thirty per cent. of the cases have a tubercular history, either personal or family. As for the treatment ; it should be symptomatic and antiphlogistic until pus demonstrates its presence and then the sooner an incision is made the better. In women the attempt has been made once or twice to drain these abscesses through the vagina, but the cases have proved troublesome and the suprapubic incision seems to be the best means for drainage at our disposal. An early incision is advisable, of course in view of the fact that twelve per cent. of these cases have died from a purulent peritonitis resulting from perforation.

The question of a laparotomy for the relief of a peritonitis collowing perforation was not considered in any of these four cases.

Besides the class of cases just described, there are many reported instances of pre-vesical suppuration, similar in history to those already mentioned ; but in all of them some very evident cause has been apparent. All have been either a result of external traumatism or dependent upon pathological conditions of neighboring organs. The cases which are directly attributed to external violence are few in number, and in them the injuries received have varied so much in kind and in severity, that but little can be done in the way of classifying them or making deductions from them. Among the accidents resulting in pre-vesical suppuration, may be mentioned a fall upon the abdomen from a horse ; rupture of the gravid uterus during labor as a result of

attempted version; rupture of the full bladder; suprapubic puncture of the bladder in a case of retention of urine; goring by the horns of a cow; gunshot wound of the pelvis with the bullet imbeded somewhere in this region. In this last case a fall served as the immediate cause of the inflammation which resulted in the formation of the abscess about the bullet after it had been in the pelvis for six years. Some of these traumatic cases have started as extravasations of blood, and some have been purulent inflammations of the pre-vesical connective tissue. The cases run about the same course as the so-called idiopathic ones, and among the few which proved fatal were those of ruptured uterus, ruptured bladder, and the suprapubic vesical puncture. In the first two of these there was a large extravasation of blood into the pre-vesical space.

Whether some of the traumatic cases start *in* the abdominal wall and break into the pre-vesical space or not, it is impossible to say. A very small number (3 or 4) of cases are recorded where a pre-vesical inflammation appeared in the course of a typhoid fever. They may have started as blood extravasations in the recti muscles, due to diseased vessel walls, and then may have broken through the thin anterior layer of the transversalis fascia into the pre-vesical cavity. Of the three cases of which I have records, two recovered and one died from peritonitis following perforation into the general peritoneal cavity. It is suggested by several writers that pre-vesical abscesses probably do occur occasionally as metastases in pyæmia just as do peri-urethral abscesses. I have not found a report of any such case.

There still remain for mention the cases of pre-vesical inflammation, which are direct extensions of pathological processes in neighboring organs or tissues. Most of these occur in the male in the course of some vesical, prostatic or urethral trouble. Occasionally they follow uterine or peri-uterine inflammations. Cases of this sort are reported following chronic cystitis with and without the presence of calculi in the bladder; perforation of a bladder which contained a stone; stricture of the urethra; gonorrhœa and various forms of pelvic inflammation in the female. One case is recorded where the phlegmon followed an abscess in the joint at the symphysis pubis, which came on after a labor. Another very curious case is that of an inflammation of the umbilical veins in a newly born infant followed by a pre-vesical abscess and death on the 13th day. The autopsy showed all the pelvic organs healthy, but a purulent thrombosis of the umbilical vein. Still another interesting case is reported by Guyon, in which the autopsy, made five weeks after an internal urethrotomy for stricture, showed an abscess of the prostate, a perforation at the neck of the bladder into the pre-vesical space

and a large pre-vesical abscess. Of twenty-four cases tabulated by Englisch (of course by no means all that there are recorded), eight died (33⅓ per cent.); but the cases resulted from such a variety of causes, and the accompanying conditions were so different in different instances, that these deaths must not be ascribed to the pre-vesical abscess itself, which in some of these cases was only an incident.

To sum up then: There are a large number of reported cases of undoubted pre-vesical inflammation, of which rather less than half subside without suppuration, and rather more than half result in abscess formations. Many of these cases occur as a direct extension of an inflammatory process from neighboring organs, chiefly the bladder, prostate and urethra. A few occur as a result of traumatism, and an occasional one is metastatic.

The remaining cases may be classed at present as idiopathic cases. These have been carefully studied by Englisch, who reports thirty-three as follows: thirty-three cases with four deaths, (12½ per cent.) all from a general purulent peritonitis following perforation of the abscess into the peritoneal cavity. Of these thirty-three cases,

14 subsided without operation and without spontaneous opening.
7 were incised and slowly recovered.
12 opened spontaneously.
4 through the anterior abdominal wall.
2 into the rectum.
2 into the bladder or urethra, and
4 into the peritoneal cavity.

It is believed by many surgeons, though without proof so far as the writer is aware, that these abscesses are of tubercular origin. Of Englisch's 10 cases (from his personal experience), 4 had tubercular histories.

The prognosis is not necessarily unfavorable as is commonly stated, for of the 33 idiopathic cases but 4 died (12 per cent.) and of these 4, all died from a perforation into the general peritoneal cavity, and in only one of these 4 cases was an attempt made to liberate the pent-up pus by operation.

BIBLIOGRAPHY.

1. Manguest de la Motte. *Traité de Chirurgie.* Edit. p. Sobatier, 1697-C. I, p. 205.
2. Follin. *Pathologie Externe.* Vol. V, p. 761.
3. Gosselin. *Clinique de la Charité.* 48th Leçon. Vol. II.
4. Bernutz. *Archives Gen. de Médicine*, 1850, 4me serie. Tome 23.

5. Retzius. *Hygeia.* No. 2, 1856.
6. Retzius. Ueber die Lineæ semicirculares Donglasii. *Sitzungsberichte der Akademie der Wissenschaften.* Wien. Vol. 29, 1858. *Mathematish. naturwissenschaft. Classe.*
7. Hyrtl. *Sitzungsbericht d. Mathematisch. naturwissenschaft. Klinik d. Kaiserlich. Akademie d. Wissenschaft. in Wien.* Band 29, No. 9, 1858.
8. Dance. *Nouvelle Dict. de Médicine, etc.*, 1864. Tome 1, Section on "Abdomen."
9. Gruber. *Virchow's Archiv.* Band 24, heft. 1 and 2.
10. Marotte. *Union Médicale.* June 2, 1864.
11. Paul. *Bulletin de la Societé Anat.* 2 serie, Tome 7, p 318, 1862.
12. Labuze. Des Abcès devélopés dans le gaînes du muscelle, etc., etc. *Thèse de Paris*, 1871.
13. Dussler. *Schmidt's Jahrbuch*, 1874, II, p. 165.
14. Vasassy. Des Phlegmons sous péritoneaux, etc. *Thèse de Paris*, 1877.
15. Heurtaux. *Bulletin et Mem. de la Societé de Chirurgie*, 1877, Tome 3, p. 611.
16. Arnould. *Gazette Médicale de Paris*, 1877, p. 501.
17. Hodges. *Massachusetts General Hospital Records*, 1877–78.
18. Koch. *Münchener Med. Wochenschrift*, No. 44, 1877.
19. Poisson. Contribution a l'Étude des phlegmons, etc. *Thèse de Paris*, 1877.
20. Castaneda y Campos. Du Phlegmon de la Cavité de Retzius. *Thèse de Paris*, 1878.
21. Gosselin. *Clinique Chirurgicale*, 1879, II, p. 268.
22. Gérardin. Recherches sur la cavité preperitonéale. *Thèse de Paris*, 1879, No. 542.
23. Pauzat. *Gazette Médicale de Paris*, 1880. Contribution a l'Étude de la region prevesicale.
24. Pilcher. *Annals of Anatomy and Surgery*, Dec., 1882.
25. Guyon. *Dictionnaire Encycl. des Sciences Méd.* Tome 1, "Abdomen."
26. Maas-Leusser. *Langenbeck's Archiv. f. Klin. Chirurgie*, 1884, Band 32, p. 87.
7. Ingalls. *Boston Medical and Surgical Journal*, March 20, 1884.
8. Englisch. *Wiener Klinik*, 1889, Jan. and Feb.
39. Englisch. *Wiener Medizinisch. Wochenschrift*, 1891, Nos. 42–46.
10. Fowler. *Annals of Surgery*, Jan., 1893, p. 105.
31. Bradford. *Boston City Hospital Records*, 1893.

NOTE.—Good lists of references may be found in the articles of Englisch and Castaneda y Campos, referred to above.